

An Explanation of the Difference Between Geologic Processes and Geoindicators

Geoindicators are parameters that can be used to assess changes in rates, frequencies, trends, and/or magnitudes in geological processes.

Glaciation is the process by which ice accumulates, flows, and recedes, shaping the land surface over which it moves. Glacier fluctuations, in the geoindicator sense, are changes in ice mass balance and position that are important to track in understanding and forecasting changes to "cryospheric" mountain ecosystems and the river systems that flow from them.

Volcanism is the process whereby magma reaches the surface and erupts to shape the surrounding landscape (and distant landscape through ash and dust falls). Volcanic unrest is the geoindicator that takes into account all the various kinds of changes (geophysical, geochemical and neo-tectonic) that occur prior to an eruption.

Dynamic coastal processes cause changes in sea level, coastal erosion and deposition, wave patterns, and climate. Shoreline position is the geoindicator that helps to assess the cumulative effect of these processes. Relative sea level is a simple measure that relates coastal subsidence and uplift, and changes in the sea-surface elevation that may be due to de-glaciation, thermal expansion (climate warming), or neo-tectonics.

See the "Overall Assessment" field in the Checklist entry for each geoindicator, for additional perspectives.